

CLAIMS

1. A polymer compound comprising a monomeric unit having an alicyclic group at a side chain,

wherein the alicyclic group is highly fluorinated and has transparency
5 to light of 157 nanometer wavelength, represented by an adsorption coefficient
equal to or less than $3.0 \mu\text{m}^{-1}$.

2. The polymer compound according to claim 1, wherein all hydrogen
atoms on the ring of the alicyclic group are fluorinated.

10

3. The polymer compound according to claim 1, wherein the alicyclic
group is a polycyclic group.

4. The polymer compound according to claim 1, wherein the alicyclic
15 group has a hydrophilic group on a ring.

5. The polymer compound according to claim 3, wherein the polycyclic
group is an adamantyl group.

20 6. The polymer compound according to claim 1, wherein the monomeric
unit is a unit derived from acrylic ester or methacrylic ester.

7. The polymer compound according to claim 1, wherein the monomeric
unit is a unit derived from vinyl ether.

25

8. The polymer compound according to claim 1, further comprising a second monomeric unit.

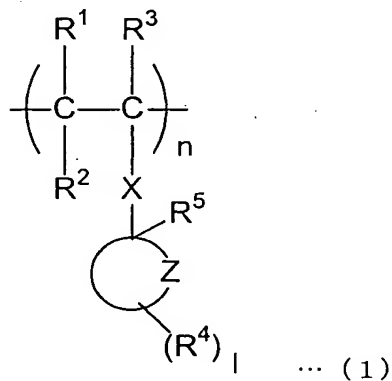
9. The polymer compound according to claim 8, wherein the second monomeric unit has an acid dissociable group.

10. The polymer compound according to claim 8, wherein the second monomeric group has an insoluble group in acid.

11. The polymer compound according to claim 8, wherein the second monomeric group is a monomeric unit derived from acrylic ester or methacrylic ester.

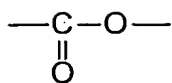
12. The polymer compound according to claim 8, wherein the second monomeric unit is a monomeric unit derived from vinylic double bond.

13. A polymer compound having a monomeric unit represented by general formula (1)

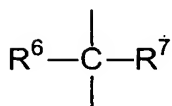


20

where n is an integer; X is an ester group of carboxylic acid,



ether group (-O-), -CH₂-O-, or an alkylidene group,



- Z enclosed by a circle is a highly fluorinated alicyclic group; R¹, R², R³,
 5 R⁵, R⁶ and R⁷ are independently one selected from the group consisting of a
 hydrogen atom, lower alkyl group, fluorine atom, and fluorinated lower alkyl
 group; I is an integer of 0 to 3; and R⁴ is a hydroxyl group,

and having transparency to light of 157 nanometer wavelength
 represented by an adsorption coefficient equal to or less than 3.0 μm⁻¹.

10

14. The polymer compound according to claim 13, wherein the alicyclic
 group is a polycyclic group.

15

15. The polymer compound according to claim 14, wherein the polycyclic
 group is an adamantyl group.

16. The polymer compound according to claim 15, wherein the adamantyl
 group is a perfluoroadamantyl group.

20

17. A resist composition comprising a polymer compound having a
 monomeric unit having an alicyclic group at a side chain, wherein the alicyclic
 group is highly fluorinated and has transparency to light of 157 nanometer
 wavelength, represented by an adsorption coefficient equal to or less than 3.0

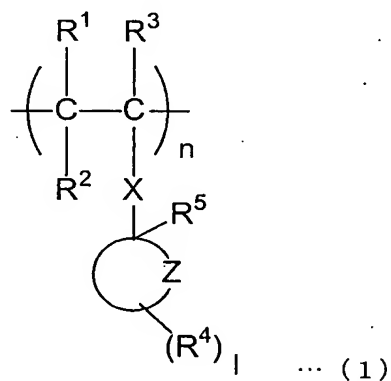
μm^{-1} .

18. The resist composition according to claim 17, comprising the polymer compound as a base polymer.

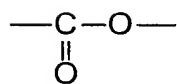
5

19. The resist composition according to claim 17, comprising the polymer compound as a dissolution inhibitor agent.

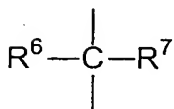
20. A resist composition comprising a polymer compound having a
10 monomeric unit represented by general formula (1)



where n is an integer; X is an ester group of carboxylic acid,



ether group (-O-), -CH₂-O-, or an alkylidene group,



15

Z enclosed by a circle is a highly fluorinated alicyclic group; R¹, R², R³, R⁵, R⁶ and R⁷ are independently one selected from the group consisting of a hydrogen atom, lower alkyl group, fluorine atom, and fluorinated lower alkyl

group; l is an integer of 0 to 3; and R^4 is a hydroxyl group;

and having a transparency to light of 157 nanometer wavelength represented by an adsorption coefficient equal to or less than $3.0 \mu\text{m}^{-1}$.

21. The resist composition according to claim 20, comprising the polymer compound as a base polymer.

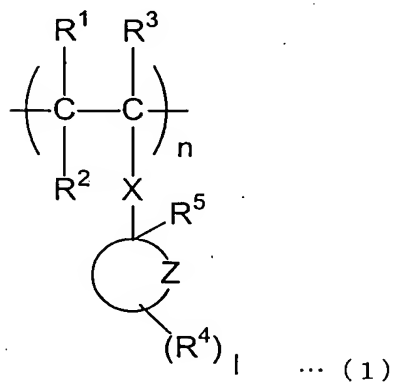
22. The resist composition according to claim 20, comprising the polymer compound as a dissolution inhibitor agent.

10

23. A resist dissolution inhibitor agent comprising a polymer compound having a monomeric unit having an alicyclic group at a side chain, wherein the alicyclic group is highly fluorinated and has transparency to light of 157 nanometer wavelength, represented by an adsorption coefficient equal to or less than $3.0 \mu\text{m}^{-1}$.

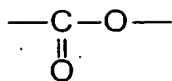
15

24. A resist dissolution inhibitor agent comprising a polymer compound represented by general formula (1)

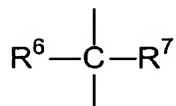


20

where n is an integer; X is an ester group of carboxylic acid,



ether group (-O-), -CH₂-O-, or an alkylidene group,



- Z enclosed by a circle is a highly fluorinated alicyclic group; R¹, R², R³,
 5 R⁵, R⁶ and R⁷ are independently one selected from the group consisting of a
 hydrogen atom, lower alkyl group, fluorine atom, and fluorinated lower alkyl
 group; l is an integer of 0 to 3; and R⁴ is a hydroxyl group,

and having a transparency to light of 157 nanometer wavelength
 represented by an adsorption coefficient equal to or less than 3.0 μm⁻¹.